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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/687,881	10/13/2000	Mohamed Khalil	22171.162.02/10661RR/US02	8691

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HAYNES AND BOONE, LLP
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EXAMINER

PHAN, MAN U

ART UNIT	PAPER NUMBER
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2616

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/687,881

Applicant(s)

KHALIL ET AL.

Examiner

Man Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is in response to applicant's 01/10/2007 Amendment in the application of Khalil et al. for a "Buffer management for mobile internet protocol" filed 10/13/2000. This application claims benefit from Provisional Application 60/160,031 dated 10/18/1999. This application is a Request for Continued Examination (RCE) under 37 C.F.R. 1.114 filed on October 01, 2007. The proposed amendment to the claims has been entered and made of record. Claims 1-33 are pending in the present application.
2. The applicant should use this period for response to thoroughly and very closely proof read and review the whole of the application for correct correlation between reference numerals in the textual portion of the Specification and Drawings along with any minor spelling errors, general typographical errors, accuracy, assurance of proper use for Trademarks TM, and other legal symbols @, where required, and clarity of meaning in the Specification, Drawings, and specifically the claims (i.e., provide proper antecedent basis for "the" and "said" within each claim). Minor typographical errors could render a Patent unenforceable and so the applicant is strongly encouraged to aid in this endeavor.

Claim Objections

3. Claims 15 is objected to because of the following informalities: This claims depend on itself 15. Appropriate correction is required.

Claim Rejections - 35 USC ' 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 8-27 and 31-33 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed “*computer program product*” or “a software routine” of claims 8-27 and 31-33 is non statutory as at no time in the claim does applicant define the software routine. Claims 8-27 and 31-33 are direct to “*a computer program product*” which is not supported by either a specific asserted utility or a well established utility. Claims 8-27 and 31-33 merely define “*a computer program product*” or “*data record for storing instructions*”, and is not directed to statutory subject matter. The claims appear to be nothing more than a signal not tangibly embodied in a manner so as to be executable and thus non-statutory for failing to be in one of the categories of invention. It’s not tangibly embodies and non-functional descriptive material - data per se. Therefore, what applicant is attempting to claim as a computer program product or data record as is known in the art. The claim is actually drawn to non-functional descriptive material stored on a machine readable medium. The description given in the specification does not cure this problem. In practical terms, claims define non-statutory processes if they simply manipulate abstract ideas, e.g., a bid or a bubble hierarchy, without some claimed practical application, *Schrader*, 22 F.3d at 293-94, 30 USPQ2d at 1458-59; *Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759.

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Claims 8-27 and 31-33 are also rejected under 35 U.S.C. 112, first paragraph.

Specifically, since the claimed invention is not supported by either a specific asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC ' 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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8. Claims 1-13 and 23-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rai et al. (US#6,414,950) in view of Sato (US#6,553,015).

With respect to claims 1-7, both Rai et al. (US#6,414,950) and Sato (US#6,553,015) discloses a novel method and system for supporting a handoff of a mobile node from a first agent of a first network to a second agent of a second network according to the essential features of the claims. Rai teaches the Mobile IP handoffs which involve exchange of control messages between an end system's agent, the end system's home agent and potentially its corresponding hosts (CHs) (with route optimization option) (Col. 2, lines 31 plus). Rai further teaches in Fig. 34, illustrated the ladder diagram depicting a micro handoff scenario, in which the micro mobility handoff handles end system (designated MN for mobile node) movement between wireless hubs that belong to the same registration server and where the end system can still be served by the existing serving IWF. When an advertisement is received from a new wireless hub (through a new AP), the end system sends a message to request registration to the registration server. The registration request is relayed from the new AP to the new wireless hub to the registration server. When the registration server determines that the existing IWF can still be used, the registration server sends a build XTunnel Request message to request the existing IWF to build an XTunnel to the new wireless hub. Later, the registration server sends a tear down XTunnel request message to request the existing IWF to tear down the existing XTunnel with the old wireless hub. The build and tear XTunnel Request messages can be combined into one message (See also Fig. 3; Col. 42, lines 40 plus). To avoid losing traffic during handoffs, For micro mobility, information about the new wireless hub is included in the Tear XTunnel message exchanged between the serving IWF and the old WH. That way, the old wireless hub can

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forward buffered packets to the new wireless hub upon hearing a TearXTunnel message from the serving IWF. Alternatively, the RLP layer at the IWF knows the sequence number that has been acknowledged by the old wireless hub so far. At the same time, the IWF knows the current send sequence number of the latest packet sent to the old wireless hub. Therefore, the IWF can forward those packets that are ordered in between these two numbers to the new wireless hub before sending newer packets to the new wireless hub. The RLP layer is assumed to be able to filter duplicate packet. The second approach is probably preferable to the first approach for the old wireless hub may not be able to communicate with one another directly (Col. 46, lines 64 plus).

In the same field of endeavor, Sato (US#6,553,015,) teaches handoff method for a mobile ATM communications network, wherein upstream ATM cells and downstream ATM cells are transmitted between a mobile site and a fixed site over a first communication link and a handoff request message is sent from the mobile site to the fixed site when the first communication link is likely to become unavailable. The handoff method comprises the steps of (a) *holding the upstream ATM cells in a mobile-site buffer immediately following the transmission of the handoff request message* and determining the location of one of the upstream cells within the mobile-site buffer which is to be transmitted first when transmission of upstream cells is resumed and storing an address pointer indicating the location in a mobile-site memory, (b) transmitting an end-of-stream OAM cell from the mobile site to the fixed site over the first communication link, (c) holding the downstream ATM cells in a fixed-site buffer in response to the end-of-stream OAM cell and determining the location of one of the downstream cells within the fixed-site buffer which is to be transmitted first when transmission of downstream cells is resumed and storing an

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address pointer indicating the location in a fixed-site memory, (d) establishing a second communication link between the mobile site and the fixed site, and (e) resuming transmission of upstream ATM cells from the mobile site, starting with a location of the mobile-site buffer specified by the address pointer in the mobile-site memory and resuming transmission of downstream ATM cells from the fixed site, starting with a location of the fixed-site buffer specified by the address pointer in the fixed-site memory (Col. 20, lines 4 plus). It's noted that as a method for reducing the packet loss, there is a method of forwarding and buffering packets between access router apparatuses (hereinafter, referred to as "*a Fast Mobile IP*") described in a document "Fast Handovers for Mobile IPv6", IETF Mobile IP WG. The Fast Handover Method intends to reduce packet loss by *buffering and forwarding packets* for the mobile terminal between the access router currently connecting to the mobile terminal and a destination access router.

With respect to claim 28, it's a system claim corresponding to the method claim 1 as discussed in paragraph 4 above. Therefore, claim 28 is analyzed and rejected as previously discussed with respect to claim 1.

With respect to claims 8-13 and 23-27 and 29-33, These claims differ from claims Rai et al. in view of Sato in that the claims recited a software program product for performing the same basis of steps and apparatus of the prior arts as discussed in the rejection of claims 1-7. It would have been obvious to a person of ordinary skill in the art to implement a software program product in Rai et al. in view of Sato for performing the steps and apparatus as recited in the claims with the motivation being to provide the efficient enhancement to a handoff of a mobile in a mobile IP network, and easy to maintenance, upgrade.

One skilled in the art would have recognized the need for effectively and efficiently in supporting the transfer of data to a mobile node in mobile IP handoffs utilizing buffer control messages, and would have applied Sato's teaching of the initiation request messages of the handoff into Rai's novel use of the micro mobility handoff scenario in mobile IP handoffs messages. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Sato's high speed switching of communications links without interrupting ATM cell traffic into Rai's sequence delivery of messages with the motivation being to provide a method and system for supporting a handoff of a mobile node in mobile IP handoffs messages.

9. Claims 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rai et al. (US#6,414,950) in view of Sato (US#6,553,015) as applied to the claims above, and further in view of Siu et al. (US#6,252,851).

With respect to claims 14-22, these claims differ from the claims above in that the claims require the buffer controlling messages in supporting handoff. In the same field of endeavor, Siu et al. (US#6,252,851) discloses a method for regulating flow through a network node where forwarding of successive data packets from sources is dependent on receipt of acknowledgments from the destinations, the packets are buffered in a packet buffer as they arrive from their sources. Acknowledgments are withheld in an acknowledgment bucket, and are released such that successive data packets are buffered in the sources to avoid overflow of the packet buffer due to bandwidth limitations toward the destinations. The destination is typically in a bandwidth constrained network (BCN) while the source is in a local area network (LAN) using transmission

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control protocol (TCP). In a preferred embodiment the BCN operates in asynchronous transfer mode (ATM), and a transmission rate of the BCN is returned upon request. TCP source states are maintained by observing TCP traffic through the node. The behavior of TCP sources is predicted from traffic observations. Then, the known transmission rate of the BCN is translated to a timed sequence of acknowledgments releases based on the predicted behavior. Alternatively, an estimate is maintained of effective queue size, which includes data buffered in the packet buffer, and residual data packets, i.e., those data packets that have been requested but have not yet been received at the node. An acknowledgment is released if the effective queue size is less than a threshold, which may be dynamic (See Fig. 5; Col. 3, lines 10 plus).

One skilled in the art would have recognized the need for effectively and efficiently in supporting the transfer of data to a mobile node in mobile IP handoffs utilizing buffer control messages, and would have applied Siu's buffer control in regulating TCP flow and Sato's teaching of the initiation request messages of the handoff into Rai's novel use of the micro mobility handoff scenario in mobile IP handoffs messages. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Siu's method for regulating TCP flow over heterogeneous networks, and Sato's high speed switching of communications links without interrupting ATM cell traffic into Rai's sequence delivery of messages with the motivation being to provide a method and system for supporting a handoff of a mobile node in mobile IP handoffs messages.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Kulkarni et al. (US#5862,481) is cited to show the inter-technology roaming proxy.

The Moelard (US#5,636,217) is cited to show the method for connecting roaming stations in a source routed bridged LAN.

The Fuentes (US#5,440,613) is cited to show the architecture for a cellular wireless telecommunication system.

The Raychaudhuri et al. (US#6,023,461) is cited to show the handoff method for an ATM wireless network wherein both the switch and the mobile buffer cells and the mobile controls when the handoff will occur.

The Rauhala (US#6,611,547) is cited to show a method of avoiding packet loss at a handover in a packet-based telecommunications network and handover method.

The Baker et al. (US#5,490,139) is cited to show a mobility enabling access point architecture for wireless attachment to source routing networks.

The EP 085163 A2 is cited to show the system and method for achieving handover in wireless LAN by buffering data at subsequent access point.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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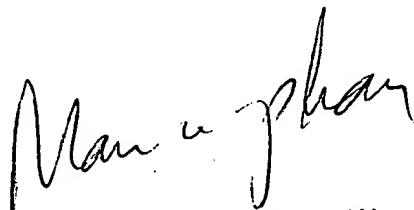
supervisor, Wellington Chin, can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at toll free 1-866-217-9197.

Mphan

03/13/2007.


MAN U. PHAN
PRIMARY EXAMINER